

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
6 May 2004 (06.05.2004)

PCT

(10) International Publication Number  
**WO 2004/038409 A3**

(51) International Patent Classification<sup>7</sup>: **G01N 33/487**

Berlioz, Le Chevallon de Voreppe, F-38340 Voreppe (FR).  
**SAUTER, Fabien** [FR/FR]; 22 rue Sisteron, F-38170  
Seyssinet-Pariset (FR).

(21) International Application Number:  
PCT/EP2003/015044

(74) Agent: **BRYKMAN, Georges**; c/o BREVATOME, 3, rue  
du Docteur Lancereaux, F-75008 Paris (FR).

(22) International Filing Date: 28 August 2003 (28.08.2003)

(25) Filing Language:

English

(81) Designated States (*national*): CN, JP, US.

(26) Publication Language:

English

(84) Designated States (*regional*): European patent (AT, BE,  
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,  
IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).

(30) Priority Data:

02/10663

28 August 2002 (28.08.2002) FR

**Published:**

- with international search report
- before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

(71) Applicant (*for all designated States except US*): **COM-  
MISSARIAT A L'ENERGIE ATOMIQUE** [FR/FR];  
31/33, rue de la Fédération, F-75752 Paris 15ème (FR).

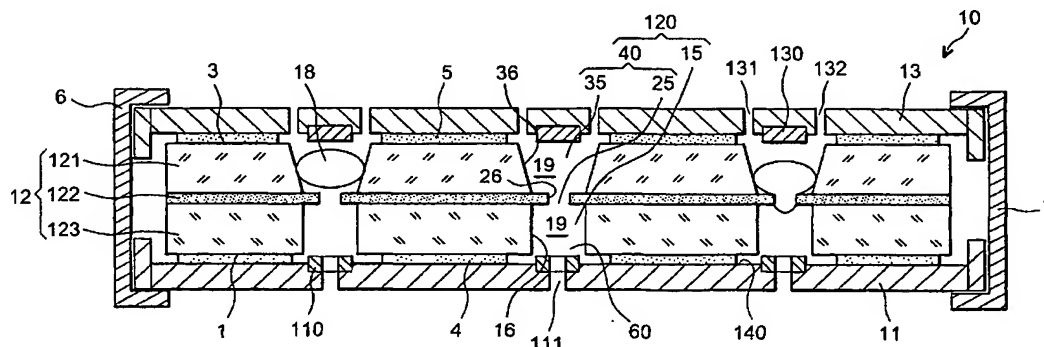
(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **PICOLLET-DA-  
HAN, Nathalie** [FR/FR]; Le Crozat, F-38580 La Ferrière  
(FR). **CAILLAT, Patrice** [FR/FR]; 10 rue de Provence,  
F-38130 Echirolles (FR). **REVOL-CAVALIER, Frédéric**  
[FR/FR]; 11 rue de la Saulne, F-38180 Seyssins (FR).  
**CHATELAIN, François** [FR/FR]; 413 rue Hector

(88) Date of publication of the international search report:  
4 November 2004

*For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: DEVICE FOR MEASURING THE ELECTRICAL ACTIVITY OF BIOLOGICAL ELEMENTS AND ITS APPLICATIONS



(57) Abstract: The invention relates to a device for measuring the electrical activity of biological elements, comprising a substrate (12) which has lower and upper faces and at least one through opening (120), said opening being delimited by a set of walls, and characterized in that: it comprises two plates (11, 13) placed on either side of the lower and upper faces of the substrate and delimiting with said set of walls a chamber (19); each of the plates is provided, on its face lying opposite the substrate, with at least one electrode (110, 130) facing the opening in the substrate; each of the plates further has at least one channel that starts inside said chamber and connects the latter to the outside of the device; and the chamber communicates with the outside of the device only through said channels.

# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP 03/15044

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 G01N33/487

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97/16726 A (CHIRON DIAGNOSTICS CORP ;SULLIVAN KEVIN J (US)) 9 May 1997 (1997-05-09) page 3, line 28 - page 5, line 26; figure 1	1
A	US 5 643 742 A (HUBER OSKAR WERNER ET AL) 1 July 1997 (1997-07-01) abstract column 4, line 1 - line 57; figures 1-3	1-42
A	US 6 315 940 B1 (EGERT ULRICH ET AL) 13 November 2001 (2001-11-13) abstract column 5, line 52 - column 8, line 23; figures 1-3	1-42

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the International filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the International filing date but later than the priority date claimed

- \*T\* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

13 September 2004

Date of mailing of the international search report

20/09/2004

Name and mailing address of the ISA  
European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Kempf, G

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/15044

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9716726	A	09-05-1997	AU 7327196 A	22-05-1997
			DE 69621634 D1	11-07-2002
			DE 69621634 T2	19-09-2002
			EP 0858603 A1	19-08-1998
			WO 9716726 A1	09-05-1997
			US 6058934 A	09-05-2000
US 5643742	A	01-07-1997	CA 2140892 A1	17-02-1994
			WO 9403583 A1	17-02-1994
			EP 0655086 A1	31-05-1995
			JP 3288378 B2	04-06-2002
			JP 8500438 T	16-01-1996
			AU 7682491 A	30-10-1991
			CA 2079897 A1	04-10-1991
			EP 0523148 A1	20-01-1993
			JP 5506098 T	02-09-1993
			WO 9115595 A1	17-10-1991
			AT 256729 T	15-01-2004
			DE 69233275 D1	29-01-2004
			DE 69233275 T2	02-09-2004
US 6315940	B1	13-11-2001	DE 19712309 A1	20-05-1998
			WO 9822819 A1	28-05-1998
			EP 0938674 A1	01-09-1999
			US 2002074227 A1	20-06-2002